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ABSTRACT

This paper discusses two influential studies on relative clauses (RC), and addresses the development of relative clauses in the interlanguage of advanced Chinese English-as-a-Second-Language speakers in light of the theory of Accessibility Hierarchy (AH). As the two theories predict, avoidance of RCs is typically found with oblique and genitive rather than with objects or subjects of RCs. Error types are similar to those found for learners of other first-language backgrounds. The use of Resumptive Pronouns in Genitive RCs, at the bottom of the hierarchy, is of particular interest. To explain these findings, a processing motivation, hypothesized to underlie the AH and its reflexes in interlanguage, is outlined. (Author/JL)

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Relative Complexity: Beyond Avoidance[1]

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Introduction

This paper brings together two influential contributions to the literature on relative clauses (henceforth RCs): Schachter (1974) and Keenan & Comrie (1977). It addresses the development of relative clauses in the interlanguage of advanced Chinese ESL speakers in light of Keenan & Comrie's Accessibility Hierarchy (AH). As the two theories predict, we typically find avoidance of RCs with oblique and genitive rather than with objects or subjects RCs. Error types are similar to those found for learners of other first language backgrounds: the use of Resumptive Pronouns in Genitive RCs, at the bottom of the hierarchy, is of particular interest. To explain these findings, we outline a processing motivation hypothesized to underlie the AH and its reflexes in interlanguage.

Relatives in Chinese and Interlanguage

Although the development of RCs has been investigated for several second language contexts, the case of Chinese learners of English is particularly interesting in that the L1 relative clauses are typologically different from those in English, as illustrated from Mandarin in (1).

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(1a) Xihuan wo de ren (subject relative clause)
like me REL person
'The person/people who like me.'

(1b) Wo xihuan de ren (object relative clause)
I like REL person
'The person/people who I like.'

The word order in Chinese is the reverse of the English: the head noun comes at the end of the relative clause, so the structure is left-branching. The relative marker is the invariant de (ge in Cantonese, where the RC structure is similar) which is not unique to RCs but occurs in various structures of prenominal modification. Consequently, knowledge of the Chinese structure cannot readily be transferred in

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constructing an English RC. In this situation, we can expect universals of interlanguage structure to be manifested in the development of English relatives in Chinese speakers, and vice versa.

The Noun Phrase Accessibility Hierarchy

A productive paradigm of research on relative clauses has been inspired by the Noun Phrase Accessibility Hierarchy, proposed by Keenan and Comrie (1977). The AH is a generalization about relative clauses across languages. It essentially states that the ease with which relative clauses may be formed follows a hierarchy of grammatical relations, as in (2):

(2) SUBJECT > D.O.> I.O.> OBLIQUE > GENITIVE > OCOMP[2]

That is, subjects are more "accessible" to relative clause formation than direct objects which are more accessible than indirect objects, and so on. This entails that if a language allows relativization with one grammatical relation, it must allow it with all the relations higher up on the hierarchy. Languages differ substantially in how far down the hierarchy they permit relativization.

These predictions have stood up well across languages. We are concerned here with the idea that the interlanguages of second language learners are also subject to the Accessibility Hierarchy, and that it represents a hierarchy of difficulty in second language acquisition of relative clauses.

Avoidance of Relative Clauses

The study of relatives in interlanguage was pioneered by Jacquelyn Schachter in her classic paper, "An Error in Error Analysis" (1974). The paper argued

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[2] The Object of Comparison (OComp) is included for the sake of completeness only. Rod Ellis (p.c.) has observed that such structures as (i-ii) below are exceedingly rare and therefore not testable in terms of production data.

(i) the farm that theirs is bigger than
(ii) the farm than which theirs is bigger

Moreover, Vivian Cook has found that native speakers are uncertain of the grammaticality of such relatives.

that the analysis of interlanguage grammar requires much more than recording and explaining errors. Schachter pointed out that considering errors alone does not give a true picture of L2 competence. Her results, as shown in Table 1, might easily give the impression that the Persian and Arabic speakers have the greatest difficulty with relative clauses--they make many more errors than the other groups, while Chinese and Japanese speakers make relatively few.

Table 1: Relative clause production in five language groups (from Schachter 1974:209)

	Correct	Error	Total	% errors
Persian	131	43	174	25
Arab	123	31	154	20
Chinese	**67**	**9**	**76**	**12**
Japanese	**58**	**5**	**63**	**8**
American	173	0	173	-

However, an equally important contrast is in the number of relative clauses attempted: Chinese and Japanese speakers attempted barely half as many as the other groups. Schachter hypothesized that they were avoiding the structure, producing relatives only when they were confident of getting them right. While error patterns alone would suggest that Arabic and Farsi speakers had more difficulty with Relative clauses, once we consider avoidance the picture is quite different. Schachter attributes this effect to first language influence: while Arabic and Farsi speakers can construct an English relative clause based on a similar L1 structure, Chinese speakers cannot. Consequently, they rarely attempt one; and when they do, as we shall see, they make many of the same errors as Arabic speakers.

Together with the Accessibility Hierarchy, Schachter's avoidance hypothesis makes a significant prediction: learners should tend to "avoid" relative clauses lower on the hierarchy more than those higher up. Following the interlanguage hypothesis--the assumption that interlanguages are natural languages--at any developmental stage, a learner's production should respect the hierarchy. Thus, there should be learners who use subject relatives and avoid other types, learners who can manage indirect object but not oblique or genitive RCs, etc.

Naturally, these predictions only follow if other things are equal--in particular, if L1 transfer does not intervene to favour one type of relative over another. For the typological reasons discussed earlier, Chinese learners of English make an appropriate test case here in that the Chinese structure is not readily transferable. First language influence cannot be wholely discounted, however. Chinese forms subject and object RCs, as in (1a-b), much more readily than those lower on the hierarchy. Hsin (1991) identifies first language influence on the production of RCs by Taiwanese ESL students. These subjects produced only subject and object relatives ih free writing.

Our data come from written production of advanced students, English majors at the University of Hong Kong and the Chinese University. Such students can no longer afford to keep on avoiding relatives. They are writing on complex topics such as literary criticism and linguistic analysis, which force the use of relative clauses if they are to write at an appropriate level of sophistication. To see the dilemma facing the advanced student, let us consider a first year essay which shows avoidance and its effect on style. The student in (3) is trying to explain the plot of "Julius Caesar":

(3) Rome is under the military rule of **Caesar. And Caesar's** ambition is more and more obvious...This can be shown by looking at **Caesar's words. In his words,** he shows his contempt...

Although it contains no actual errors, the passage needs relatives to extend the length of sentences beyond a single clause and to achieve cohesion. For a native speaker, not to use relatives here would be quite unnatural, unless it were for some kind of intentional stylistic effect.

Notice next that the Relative Clauses required here are not of the most straightforward kind. The first case requires a genitive Relative Clause--"Caesar, whose ambition"--and the second a locative (oblique) one: "Caesar's words, in which". Moreover, the same essay contains several examples of relative clauses, so it is not simply the case that the student cannot form RCs. Rather, she can readily produce subject relatives, such as these:

(4) Cassius and his conspirators rebel against **Caesar, the one who** will probably become the king of Rome.

(5) Except **Brutus who actually rebels** against Caesar for the common good,...

Given the free production of subject relatives and avoidance of others, it seems plausible to suppose that the restriction of Relative Clauses to subjects in such learners is not merely the effect of input frequency. Rather, the target structures involving genitive and locative RCs, as required in example (3), are being avoided, as Schachter suggested. It is worth asking exactly what this means in terms of grammatical knowledge. Firstly, it is presumably a question of production rather than comprehension: we take it to mean that the learner's grammar does not allow the target structure to be spontaneously generated. Secondly, the knowledge that is missing is tacit or "acquired" knowledge; in other words, "avoidance" is primarily unconscious.[1] If we were to spoon-feed the same student with a sentence-combining task, she would no doubt be able to produce the target structure, with the aid of conscious effort.

Error Patterns

Further evidence that the learner's grammar does not generate the target structures comes from the errors that occur. When more complex RCs are attempted, we find various interlanguage developmental structures. The error types we have found are very much like those which have been observed in other L2 contexts, suggesting that universals of interlanguage syntax are at work here.

One basic error is to simply ignore the grammatical relation involved, by using <u>that</u> as a generic relative marker, as in (6) and (7):

(6) There are also **cases that boys are naughty** and they pretend to be girls.

(7) It is really a contriversial issue **that nobody can find a definite answer**.

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[1] It seems likely that some learners also avoid such complex structures consciously, with the same effect on production.

We also find which-relatives with a missing preposition (as in 8):

(8) Base is defined as the word **which affix can be added.**

The difficulty here involves the acquisition of Pied-Piping (moving the preposition along with the relative pronoun, as in *to which affixes can be added*) and Preposition Stranding (leaving the preposition behind, as in *which affixes can be added to*). Both of these options are unknown in Chinese; the choice between them is primarily a stylistic one in English. Confusion with these options is clear from examples such as (9) which has both Pied-Piping and Preposition Stranding:

(9) Stem is the element **to which the inflectional affixes add to.**

Particularly interesting in terms of the AH is the use of resumptive pronouns as in (10) and (11):

(10) 'Go in for' is a phrasal verb **which the meaning of it** is very different from the literal meaning.
(11) There are thousands of crimes **of which** think and sex are two **of them.**
(12) They wanted to build a tower **which its top** can reach the heaven.

These error types appear to be universal features of interlanguage. Tarallo & Myhill (1983) found them all when they studied English speakers learning various languages, including Chinese. Surprisingly, English learners of Chinese produce resumptive pronouns, even though they are almost unknown in English.

In our data, the only clear cases of resumptive pronouns involve genitive relatives, as in (10-12). This accords with Keenan & Comrie's cross-linguistic finding that languages begin to use resumptive pronouns at the lower end of the hierarchy. Keenan (1988:37) has hypothesized an explanation for this distribution: resumptive pronouns facilitate processing of a relative clause because they allow the logical structure of a full clause to be retained. This obviates the need to reconstruct the relation beween the antecedent and the trace of wh-movement.

Another interesting error is the type in (13-14):

(13) At the levels of phonetics and phonology, the use of alliteration, parallelism and rhythm is quite common. **The use of which** is regularly found in the headlines...

(14) There are listing devices in news reporting. By **the use of which**, the report will become more impressive and memorable.

This use of relatives like these, with the antecedent outside the sentence, is quite grammatical in some languages such as Latin, where they are known as "connecting relatives". Apparently the student has acquired the knowledge that relatives create cohesion, without the constraint that the antecedent must be within the sentence.[4]

The AH and Interlanguage Development

Several studies have applied the predictions of the AH to second language acquisition (see Gass 1979; Gass & Ard 1984; Tarallo & Myhill 1983). The Hierarchy was developed within what has come to be known as the typological approach to Universal Grammar; that is, the claim of universality is based on a large sample of languages in which the principle applies. It takes the form of an **implicational universal**: the presence of property P in a language implies the presence of property Q. Specifically, a relative construction which applies to a given point on the hierarchy of grammatical relations must apply at all higher points.

Let us examine exactly what predictions follow for acquisition. John Hawkins (1987), developing an insight of Jakobson's, has made the developmental predictions of implicational universals such as the Accessibility Hierarchy very precise. Note that it is <u>not</u> predicted that the relatives should be acquired in the order of the hierarchy, because two or more types could be acquired simultaneously and the universal would still be satisfied. The prediction is this: at no stage will an interlanguage grammar permit relativisation of grammatical relations lower on the hierarchy while not permitting it on higher positions. That is, if an English learner can produce a relative

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[4] An alternative possibility is that the students have acquired this structure from older English literature in which it occurs. If so, there is a warning here about the effects of such literature as linguistic input.

clause on an indirect object, she can also produce one with a subject or direct object. Conversely, we should find learners who produce subject but not object relatives, or indirect object but not genitive ones. These predictions cannot be tested from production data alone. Gass & Ard (1984) tested for avoidance using a sentence combining task, in which subjects avoided relatives more the lower they came on the hierarchy. Conversely, the higher the structure on the hierarchy, the more accurately it was produced. These findings, then, were consistent with the Hierarchy's interlanguage predictions overall. There was one systematic exception: genitive Relative Clauses are avoided less than oblique ones. Gass & Ard attribute this to the complementizer "whose" which makes a genitive Relative Clause simpler then one involving a preposition. This would be an example of a language-specific property which skews the effect of the hierarchy.[5]

While it is widely accepted that there is a gradient of difficulty roughly corresponding to the Accessibility Hierarchy, the explanation for these findings has been more controversial. Sceptics have pointed out that they may just be a reflex of input frequency--subject relatives are much the most common, object relatives the next most frequent and so on.[6] While this is hard to discount as an explanation, students such as our subjects receive ample input with

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[5] As Rod Ellis has pointed out, the position of the Genitive on the hierarchy is complicated by the fact that the genitive relative pronoun may itself be a subject, object or oblique argument of the RC:

(i) The child whose portrait delighted her
(ii) The child whose portrait she admired
(iii) The child with whose portrait she was pleased

Consequently, there is a hierarchy of grammatical relations within the Genitive, which may overlap with the AH itself. If not controlled for, this variable can be expected to produce "noise" in RC data.

[6] This is clearly the case, as shown by textual data in Keenan (1988). Keenan sees this as evidence that the AH is operative in on-line production (perfomance) as well as being part of grammatical knowledge (competence). A similar view of the relationship between competence and performance is developed in Hawkins (forthcoming).

prepositional relatives. If all relatives were equally easy we should not find the asymmetries that we do.

Roger Hawkins (1989) also questions the relevance of the AH to IL development, but for different reasons. Studying English learners of French, he argues that learners do not make use of configurational information involving the grammatical relation of the head to the relative clause, as the AH implies. Instead, they use construction-specific information, such as the morphology of the relative marker. One problem with Hawkins' study is that the relativization strategies in French and English are, at least by typological standards, very similar. They are both head-initial and use pied-piping for oblique relatives. For English speakers, acquiring French relatives entails only details of morphology and movement. Consequently, the role of transfer may obscure any universal tendencies. In Chinese learners, by contrast, there is little basis for positive transfer. In particular, the options of Pied Piping and Preposition Stranding under movement are unknown in Chinese. As a result, Chinese speakers fall back on universal options such as resumptive pronouns.[7]

Processing and the AH

R. Hawkins (1989) acknowledges the evidence for accessibility effects in interlanguage. He attributes these findings to processing difficulty, following a proposal by Tarallo and Myhill (1983) who suggested that the difficulty of relatives was proportional to the distance between the antecedent and the trace. That is, in a subject relative the relative pronoun is immediately adjacent to the subject trace; in an

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[7] Resumptive Pronouns (RPs) are marginally possible in some varieties of Chinese, for example in the following Mandarin indirect object relative:

Wo gei **ta** shu de neige pengyou
I give **him** book RC that friend
"The friend that I gave a book to"

This option could contribute to the use of RPs in the English of Chinese speakers. Note, however, that such an effect is much less plausible as an explanation of Tarallo & Myhill's finding that English learners of Chinese adopt RPs. Gass (1979:337) notes that where RPs occur in the L1, it is not possible to distinguish L1 influence and universals in the use of RPs.

object relative, separated from its trace by the verb; and so on:

Subject: the house which _ belonged to her

Object: the house which she liked _

Oblique: the house which she lived in _

Genitive: the house which she liked the style of _

This increasing distance between antecedent and trace produces a gradient of processing difficulty which matches that of the AH. A priori, this looks like a case of the opposition between Universal Grammar and processing explanations, which has become a prominent issue in recent SLA research.* Roger Hawkins' rejection of the Hierarchy as an explanation might seem to be a case of this: a processing account obviates the need for specific universal principles governing relative clauses, at least in interlanguage. However, a parallel development is the rise of processing accounts of grammatical phenomena. In these accounts, the properties of grammatical universals are themselves attributed to processing factors. John Hawkins has proposed several such explanations and in recent, forthcoming work, he has also proposed such an explanation for the Accessibility Hierarchy.

John Hawkins argues as follows. A subject relative is simpler overall than an object relative. The reason is that a subject relative might only involve an intransitive predicate, whereas an object relative entails a transitive clause. Similarly, indirect, locative objects and so on are increasingly complex: a dative relative has either a ditransitive predicate or a prepositional phrase, either of which is more complex than a clause containing one or two NP arguments. The other relations (in English, at least) all require prepositional phrases and often pied-

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* Schachter (1989) and Schachter & Yip (1990) have proposed processing explanations for judgmental findings on extraposition and wh-movement respectively. They suggest that many second language studies in which UG effects have been identified may be open to the same kind of revision.

piping. Genitive relatives involve embedding inside a noun phrase, and often a prepositional structure too. The gradual increase in complexity may be seen by comparing the respective constituent structures:

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Subject:    The player [who [ _ won] ]
                           S
Object:     The match [that [he won [_] ] ]
                            S      NP
Dative:  The player [who [they gave [_] [the award] ]]
                         S         NP   NP
Oblique: The player [about whom [they wrote [_] ] ]
                                  S          PP
Genitive: The player [whose name [they knew [ [_] ]]]
                                   S          NP NP
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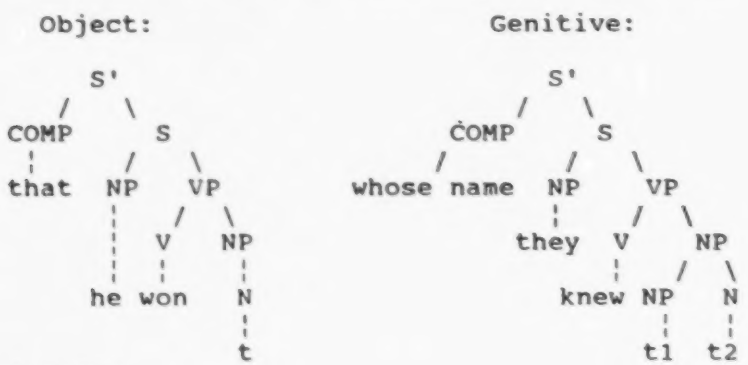
This increasing complexity could be measured in various ways. John Hawkins identifies depth of embedding, rather than distance, as the crucial factor and suggests a measure of "syntactic density" which is the number of nodes by which the most deeply embedded node of a structure is dominated or c-commanded.[9] The sample structures below show that the trace of wh-movement in the genitive structure is considerably more deeply embedded than that in the object relative:



Number of nodes dominating or c-commanding trace: 6 9

However it is measured--in terms of distance as Tarallo & Myhill suggested, or in terms of depth of embedding as in John Hawkins' account--there is a gradient of complexity here. If this is indeed the

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[9] A node *A* is said to dominate another node *B* if *A* is above *B* in the tree structure. *A* is said to c-command *B* if the node immediately above *A* dominates *B*.

explanatory basis for the AH, then we can accept Roger Hawkins' conclusion that processing considerations are crucial in the development of relative clauses without rejecting the relevance of the AH. Rather, the AH is itself motivated by considerations of processing, with reflexes in both cross-linguistic distribution and interlanguage.

Conclusions

The production of English relative clauses by Hong Kong learners bears out the predictions made by Schachter's avoidance hypothesis in conjunction with the NP Accessibility Hierarchy. The interlanguage of these students continues to avoid relatives up to quite an advanced level of competence, especially at the lower end of the Hierarchy. When they do attempt the more complex relatives, they produce similar error types to other second language learners. In particular, they produce Resumptive Pronouns in Genitive RCs, at the bottom of the hierarchy. The remarkable similarity here between learners of different L1 backgrounds suggests that universal factors outweigh transfer in this area.

On the explanatory side, we have suggested that the hierarchy of complexity presented by Relative Clauses is ultimately one of processing difficulty, which has reflexes in interlanguage development as well as in distribution across languages. The relevant notion of complexity may be measured in terms of the overall depth of embedding of the RC structure. The introduction of resumptive pronouns in genitive RCs, at the bottom end of the hierarchy, can be seen as a universal strategy which interlanguages, like other natural languages, adopt in response to this difficulty.

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